

# CALGO: Overview

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Create a dynamic group → reduce the number of meetings →  
**1 big meeting + 1 steering group meeting + 2 subgroups:**

**CALGO** – meetings : weekly, Tuesday 10:30-12:30

**CAT** – **Steering group** meeting bi-weekly (A) Wednesday 9:00-10:30

**JES** bi-weekly (B) Wednesday 9:00-10:30

**tau-id** bi-weekly (A) Thursday 9:00-10:30

**Note:**

**CALOP** → operation meetings: weekly, Thursday 9:00-10:30

**CAT now includes all calorimeter subgroups/id responsible**

# CALGO: Activities & Structure

CALOP –  
calorimeter  
hardware &  
operations

calib - online

cal - dq

operation

hardware

slow control

CALGO -  
calorimeter  
algorithms &  
objects

cal-software

cps-software

fps-software

icd-software

i3cal-software

CAT

cal-simulation

em-id

$\gamma$ -id

jet-id

met

eflow

jes  
la lashvili

tau-id

Dhiman Chakraborty /  
Serban Protopopescu

# CALGO/CALOP: Common Tasks

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## **calo\_dq:**

- **unify dq\_cal + cal\_examines + l1cal\_examines**
  - ease use and maintenance
  - reduce number of packages
  - speed up examines
  - compare l1cal/cal-ro
  - move away from examines framework?
- **update cal\_elec**
  - streamline code
  - add functionalities from private versions (pulser, patterns)
  - bad channel list
- **bad channel management**
  - combine channels identified from different sources in unique list
  - mechanism to keep track for and of hardware fixes
  - create infrastructure to provide run-dependent bad channel list to offline-correction package
  - cross-check channels from different sources to optimize algorithms/thresholds

# CALGO/CALOP: Common Tasks

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## cal\_online\_calibration:

- **speed up calibration procedure**
  - use of multiple L3-nodes for data-processing
  - accelerate database access
- **provide automatic configuration downloads for calibrations**
- **pulser-validation**
  - define criteria for bad-channel tagging from pulser runs
  - studies of pedestal stability
- **nlc/gain coefficients**
  - “online” determination of nlc/gain coefficients
  - verification of possible corrections
  - cross-check especially with low-energy resonances
- **cross-talk studies**
  - determine electronics cross-talk from pulser-measurement
  - study means of evaluation for cross-talk for physics events
  - implementation in calorimeter simulation?

# CALGO: Software Tasks

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## **cal\_software:**

- **integrate calT42** (cf other object-id tasks)
- **cal\_corr\_dst package**
  - provide corrections for yet unknown hardware problems
  - interfacing with online DQ-tools/incorporate run-dependent bad-channel list
- **implement DB access**
  - update of server/client code
  - adapt calunpdata
  - modify offline 0-suppression, T42 (pedestals), cal\_nlc (gains)
  - verify effect of time dependent pedestals
  - study of pedestal stability, understand pedestal-drifts (online/hardware)
- **unpacking**
  - data from T&C
  - straighten unpacking
- **tmb content**
  - calDataChunck / calT42Chunk on tmb
  - other quantities needed?

# CALGO: Software Tasks

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## cps:

- determine gain mode for CPS operation
  - calibration coefficients
- integration of CPS energies in reconstruction
  - study of low energy electrons
  - effect on jet-energy scale
- CPS simulation

## fps:

- mapping verification
- similar roadmap than CPS

## icd:

- calibration coefficients
- online calibration

## L3:

- supervision and coordination of calorimeter related L3-code

# CALGO: Tasks for Simulation

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## **calo\_simulation:**

- **em-shower/jet shapes**

- em shower shape in z-direction, floor dependence
  - em/had fractions
  - longitudinal profiles
  - jet shapes

- **cracks**

- phi-cracks
  - intercryostat region

- **dead material**

- **cross-talk?**

- **resolutions**

# CALGO: ID Tasks

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## **em-id:**

- **H-matrix/shower shapes?**
  - shower shape vs z
- **low energy electrons**
  - shower shapes
  - calibration
  - T42
- **calibration/linearity/resolution**
  - reconstruction of low energy resonances
  - integrated calibration from low energy resonances to Z
  - resolution determination from data
- **CellNN/clustering**
  - determination of geometry dependent calibration
  - certification of CellNN electrons
  - comparison of efficiency/mis-id/shower shapes with Scone algorithm
- **track/PS/CAL-match, alignment**
- **likelihood**

# CALGO: ID Tasks

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## photon-id:

- improve selection algorithms using PS
- photon-certification

## jet-id:

- estimators tuning/f90
- fake jets/merging splitting issues → T42
- ICR jets / track jets
- lowering jet energy threshold

## met:

- treatment of non reconstructed jets
- overall correction strategy of MET
- MET resolution after T42
- treatment of unclustered energy in QCD and EW events

# CALGO: ID Tasks

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## **eflow:**

- E/p matching
- Jet response/resolution with E-flow
- e/pi determination

## **tau-id**

- tau trigger studies
- use of NN for tau id
- e/tau separation
- T42 effect

## **jes**

- scale p14 with and w/o T42
- improve JES strategie

# CALO: Reconstruction packages

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## CAL-SOFTWARE:

<b>calunpdata</b>	04-Nov-02	L. Groer	offline 0-suppression applies sampling weights + gain corrections
<b>unpack_cal_fe</b>	05-Sep-02	T. Kurca	unpacks raw data (ADC+T&C+PIB)
<b>caltables</b>	04-Nov-02	V. Zutshi L. Groer	tables for sampling weights/peds to be applied in reco and on L3
<b>cal_nlc</b>	14-Jul-03	R. Zitoun	gain + non-linearity corrections
<b>caldata</b>	19-Oct-02	S. Protopopescu	creates chuck with all calorimeter data
<b>calorimeter_geometry</b>	14-Jul-03	S. Kahn	cell/floor/cryostat positions/materials
<b>cal_alignment</b>	03-Oct-02	S. Kahn	warm/cold position cal/cft match (Robert – 08/02)
<b>caladdress</b>	04-Mar-03	B. Kehoe	relates various numberings of diff. components
<b>calinfo</b>	10-Dec-01	R. Hauser	capacitances and cable length
<b>caladdress_run1</b>	23-Jul-02	?	Run I numberings
<b>*cal_util</b>	10-Dec-01	E. Gallas	detector description for CC
<b>cal_nada</b>	16-Nov-02	S. Trincaz	single isolated hot cell killer
<b>*cal_noise_finder</b>	10-Oct-02	B. Olivier	associated to nada
<b>cal_t42</b>	30-Apr-03	J.R. Vlimant	4/2-sigma noise suppression schema
<b>cal_corr_dst</b>	14-Jul-03	J. Stark	software correction for hardware problems
<b>l1cal_analyze</b>	09-Jan-03	J. Kalk	
<b>calanalyze</b>	10-Jun-02	L. Sawyer	
<b>cal_nada_analyze</b>	25-Mar-03	S. Trincaz	
<b>nada_analyze</b>	22-Apr-02	B. Olivier	

# CALGO: Next Steps

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- finalize project-leader assignments (Tuesday)
- iterate on task list with project-leaders
- clarify involvement of different groups
- specify people for tasks, roadmaps, timescales  
→ establish horizontal links
- calorimeter software package review: clarify status / responsibility
- continue tasks definition with CALOP
- preparation of calorimeter workshop October 6<sup>th</sup>
- First CALGO meeting → Tuesday 23<sup>rd</sup>